(12) UK Patent Application (19) GB (11) 2 386 828 (13) A

(43) Date of A Publication 01.10.2003

(21) Application No 0204568.0

(22) Date of Filing 27.02.2002

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(51) INT CL[7]
A46B 11/02

(52) UK CL (Edition V)
A4K K155 K158 K161 K171 K175 K176 K183
U1S S1125

(56) Documents Cited
GB 2343619 A
GB 2326820 A
GB 2172796 A
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US 5746532 A
US 5346324 A
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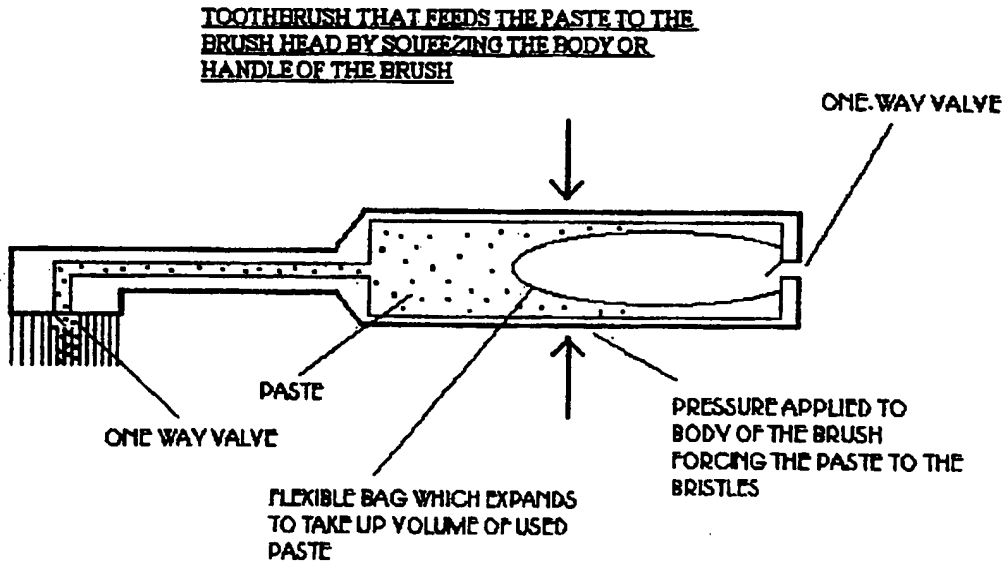
(58) Field of Search
UK CL (Edition V) A4K
INT CL[7] A46B
Other: EPODOC, WPI, JAPIO

(54) Abstract Title
A toothbrush with a built-in toothpaste holder.

(57) A reservoir toothbrush comprises a handle containing tooth cleaning fluid and a means of delivering the fluid to the bristles in the brush head. The toothpaste is forced from the reservoir, through a duct in the neck and out through a one way valve at the base of the bristles. Methods of forcing the dentifrice to the bristles include squeezing a flexible body, using a piston on a screw thread moved by an actuating knob and a pump mechanism. The amount of cleaning substance contained in the toothbrush may be adjusted to last the useful lifetime of the bristles.

FIG. 2



The claims were filed later than the filing date but within the period prescribed by Rule 25(1) of the Patents Rules 1995.

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FIG. 1

TOOTHBRUSH THAT CONTAINS PASTE/GEL AND CAN FEED IT UP THE HANDLE AND NECK DIRECTLY TO THE BRISTLES

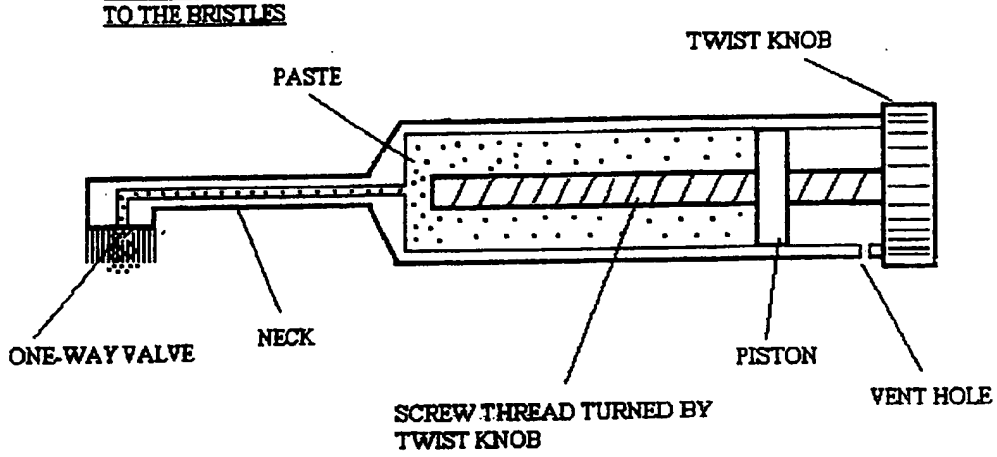


FIG. 2

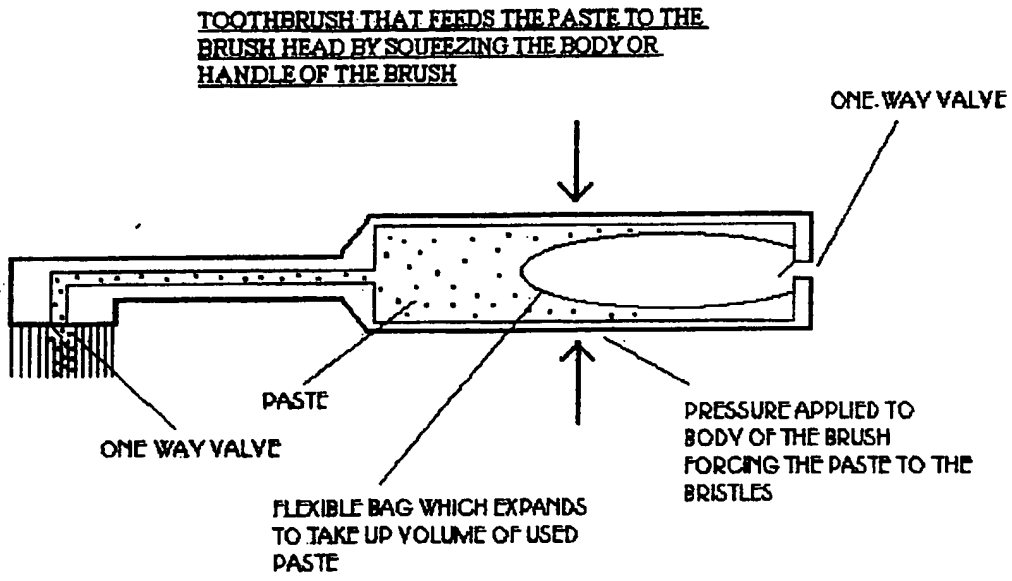
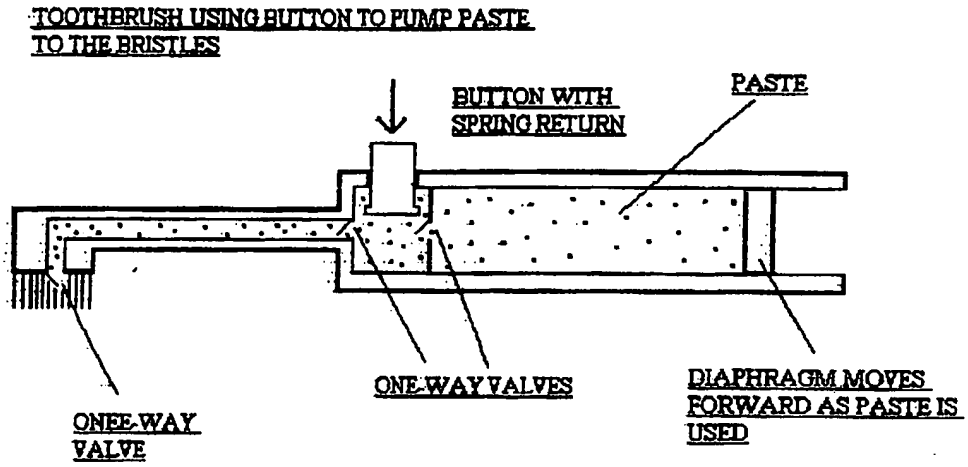


FIG. 3



PASTEBRUSH

THIS INVENTION RELATES TO A TOOTH BRUSH WHICH CONTAINS THE TOOTHPASTE, GEL OR OTHER TOOTH CLEANING AGENT, IN ONE UNIT.

[NOTE: IN THE FOLLOWING 'PASTE' REFERS TO ANY TOOTH CLEANING AGENT].

TOOTHBRUSHES HAVE TRADITIONALLY BEEN A SEPARATE ITEM TO TOOTHPASTE CONTAINERS. THESE ARE WELL KNOWN AND COMMONLY USED ITEMS OF DENTAL HYGIENE. THE INVENTION RELATES TO COMBINING THESE TWO ITEMS FOR CONVENIENCE, EASE OF USE AND COST CUTTING.

DESCRIPTION:

THE BODY {OR HANDLE} OF THE PASTE BRUSH CONTAINS THE TOOTH CLEANING AGENT, WHICH IS FORCED IN CONTROLLED AMOUNTS THROUGH THE STEM OF THE BRUSH HEAD AND DELIVERED TO THE BRUSH BRISTLES. THE PASTE ARRIVES AT THE BRISTLES VIA A ONE -WAY VALVE SET IN THE BRUSH HEAD, THIS PREVENTS THE PASTE FROM RETURNING AND KEEPS THE PASTE FRESH WITHIN THE BRUSH HEAD. THE DESIGN OF THIS ONE-WAY VALVE WOULD BE CRITICAL TO OPERATE WELL AND TO AVOID CLOGGING.

THE MEANS OF FORCING THE PASTE FROM THE BODY TO THE BRISTLES CAN BE ONE OF MANY, SOME EXAMPLES ARE SHOWN IN THE DRAWINGS.
THE METHODS SHOWN ARE INTENDED TO DEPEND ON MANUAL OPERATIONS, BUT WITH THE POPULARITY OF ELECTRICALLY DRIVEN TOOTHBRUSHES THE ELECTRICAL POWER CAN BE USED TO DELIVER THE PASTE.

THE 'PASTEBRUSH' COULD BE MANUFACTURED AS A SINGLE DISPOSABLE ITEM WITH THE DESIGN SUCH THAT BY THE TIME THE PASTE HAS RUN OUT THE BRISTLES WOULD BE WORN TO THE POINT THAT THEY NEED REPLACING ANYWAY.
OR IT COULD BE MADE WITH A BODY SEPARATE FROM THE NECK AND HEAD SO THAT EITHER COULD BE REPLACED SEPARATELY, THUS ALLOWING MORE THAN ONE PERSON TO USE THE BODY WITH THEIR OWN BRUSH HEAD.

FIG. 1 SHOWS ONE DESIGN FOR PROPELLING THE PASTE TO THE BRISTLES. THE TWIST KNOB WOULD BE TURNED FORCING THE PISTON OR DIAPHRAGM ALONG THE BODY AND SO DELIVERING THE PASTE TO THE BRISTLES VIA A ONE-WAY VALVE.

FIG. 2 SHOWS A METHOD OF TRANSFERRING THE PASTE TO THE BRISTLES BY SQUEEZING THE FLEXIBLE BODY OF THE PASTEBRUSH, AGAIN A ONE-WAY VALVE WOULD STOP THE PASTE RETURNING.
A SECOND ONE-WAY VALVE WOULD BE FITTED TO THE END OF THE BODY AND WOULD ALLOW AIR TO BE DRAWN INTO THE BODY WHEN THE SQUEEZING ACTION STOPPED, THIS AIR WOULD TAKE THE PLACE OF THE PASTE PUSHED OUT AT THE BRISTLES. THIS SECOND ONE-WAY VALVE WOULD CONNECT TO A FLEXIBLE INNER BAG SEPARATING THE AIR FROM THE PASTE. THE BAG WOULD BE MADE OF SUITABLE MATERIAL AND EXPAND AS THE PASTE IS USED UP, EVENTUALLY FILLING THE WHOLE BODY.

FIG. 3 SHOWS A METHOD OF TRANSFERRING THE PASTE TO THE BRISTLES USING A PUMP ACTION BY DEPRESSING A BUTTON OR LEVER SET IN THE BODY.
IN THIS DRAWING A BUTTON IS SHOWN AT THE BACK OF THE BODY AND WOULD BE CONNECTED TO A PISTON WHICH PUSHES THE PASTE TO THE BRISTLES. A DIAPHRAGM WOULD BE FITTED INSIDE THE BODY AND WOULD MOVE UP THE BODY AS THE BUTTON WAS RELEASED.

FIGS. 1,2 AND 3 SHOW WAYS IN WHICH THE PASTEBRUSH COULD BE MADE TO WORK, HOWEVER THEY ARE ONLY EXAMPLES OF THE BASIC CONCEPT. THAT IS TO HAVE THE TOOTHBRUSH AND PASTE COMBINED IN ONE UNIT AND TO HAVE A METHOD OF DELIVERING THE PASTE DIRECTLY TO THE BRUSH HEAD.

CLAIMS

PASTEBRUSH

1 A toothbrush which contains enough cleaning substance for several brushings and incorporates a manual device to deliver the substance to the brush bristles.

2 A toothbrush as claimed in claim 1 where the cleaning substance is sealed inside and using none-return valves delivers the required amount, via the neck of the brush, to the bristles without exposing the remainder to the outside elements.

3 A toothbrush as claimed in claims 1 and 2 where the cleaning substance is delivered to the bristles by manually squeezing the brush handle thereby forcing the substance to the bristles.

4 A toothbrush as claimed in claims 1 and 2 where the cleaning substance is forced to the bristles by twisting a knob at the handle end which, via a thread, moves a diaphragm towards the bristles.

5 A toothbrush as claimed in any proceeding claim where the amount of cleaning substance contained, would be sufficient to last the useful life of the bristles.

6 A toothbrush substantially as herein described and illustrated in the accompanying drawings.

Application No:	GB 0204568.0	**Examiner:**	Philip J Roe
Claims searched:	1 - 6	**Date of search:**	22 July 2003

Patents Act 1977 : Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance	
X	1 - 3 & 5	GB 2343619 A	(ELSENDER) see whole document and especially page 2 lines 1 - 6.
X	1, 2 & 4	US 5746532	(MEGILL & MEGILL) see whole document
X	1 & 2	DE 3603475 A	(HERTRAMPF) see WPI Abstract Accession No. 1987/178901-37 and all figures
X	1 & 2	GB 2326820 A	(BATESON) see whole document, especially page 2 lines 1-5.
X	1 & 2	GB 2172796 A	(JACKSON & JACKSON) see whole document
X	1 & 2	US 4221492	(BOSCARDIN *et al*) see whole document
X	1 & 2	US 5346324	(KUO) see whole document
X	1 & 2	JP 2152405 A	(KAO CORP) see PAJ Abstract and all figures.
X	1	US 3261367	(PICKERING) see whole document

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC[V]:

A4K

Worldwide search of patent documents classified in the following areas of the IPC[7]:

A46B

The following online and other databases have been used in the preparation of this search report:

EPODOC, WPI, JAPIO